



QUIZZES

Practice Test-1 (Chemical Equilibrium)



10 Questions



7 min

Topics

State of chemical Equilibrium, Equilibrium constant
Expression for Important reaction, Applications of
equilibrium constant

Start Quiz

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06 : 58



1/10



7 min



Hint

Q : Increase in temperature the equilibrium reaction



Alters the K_c



Variate average molecular speed



Changes the K_p



All of these

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06 : 56



2/10



7 min



Hint

Q : The rate of decrease in concentration of reactants or that of increase in concentration of products is _____ at the beginning and _____ at the ending.

A

Faster, slower

B

slower, faster

C

slower, slower

D

faster, faster

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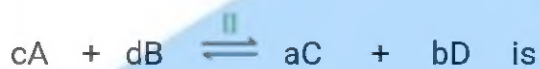
06 : 51



Q 3/10

7 min

i Hint

Q : The K_c expression for the reaction

A $\frac{[A]^c [B]^d}{[C]^a [D]^b}$

B $\frac{[C]^a [D]^b}{[A]^c [B]^d}$

C $\frac{[C]^c [D]^d}{[A]^a [B]^b}$

D $[C]^a [D]^b + [A]^m [B]^n$

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06 : 49



4/10



7 min



Hint

Q : For the system $2X + 3Y \rightleftharpoons Z$ the expression for equilibrium constant K_c is



[2X] × [3Y] / [Z]



[2X]³ × [3Y] / [Z]



[Z] / [X]²[Y]³



[Z] / [2X] × [3Y]

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06 : 47



5/10



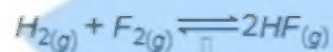
7 min



Hint

Q : For which of the following reactions $K_p > K_c$

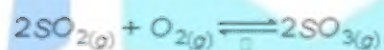
A



B



C



D



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06 : 45

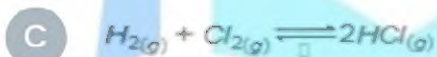
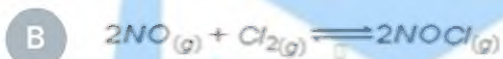


Q 6/10

7 min

Hint

Q : For which of the following reactions K_c is greater than K_p



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06 : 43



7/10



7 min



Hint

Q : Which is the correct relationship



$$K_P = K_C (P)^{\Delta n}$$



$$K_C = K_P (RT)^{\Delta n}$$



$$K_P = K_C (RT)^{\Delta n}$$



$$K_P = K_C (RT)^{\Delta n}$$

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06 : 42



8/10



7 min



Hint

Q : When no. of moles of reactants are equal to that of the products,



$K_p < K_c$



$K_p > K_c$



$K_p = K_c$



none of these

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06 : 40



9/10



7 min



Hint

Q : If ratio of concentration of products and that of reactants is greater than K_c then reaction will move

A

Forward

B

backward

C

unchanged

D

at equilibrium

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10/10



7 min



Hint

Q : If the value of K_c is very large for a reaction then the reaction is



Incomplete



partially complete



almost complete



no effect

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QUIZ RESULT

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Q

0

11-Apr-2021

A

0/10

J

7 min

0 s

100%

View Result

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Correct

0



Incorrect

0



Unattempted

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Chemistry

100%

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Correct



Unattempted



Incorrect



1/10

Q : Increase in temperature the equilibrium reaction



Alters the K_c



Variate average molecular speed



Changes the K_p



All of these

Explanation

All of these

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← Practice Test-1(Chemical Equilibrium)



Correct



Unattempted



Incorrect



2/10

Q : The rate of decrease in concentration of reactants or that of increase in concentration of products is _____ at the beginning and _____ at the ending.



Faster, slower



slower, faster



slower, slower



faster, faster

Explanation

Reaction proceed faster at the beginning while slower at the end.

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Correct



Unattempted



Incorrect



3/10

Q : The K_c expression for the reaction



$$\frac{[A]^c [B]^d}{[C]^a [D]^b}$$



$$\frac{[C]^a [D]^b}{[A]^c [B]^d}$$



$$\frac{[C]^c [D]^d}{[A]^a [B]^b}$$



$$[C]^a [D]^b + [A]^c [B]^d$$

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Correct



Unattempted



Incorrect



4/10

Q : For the system $2X + 3Y \rightleftharpoons Z$ the expression for equilibrium constant K_c is



$[2X] \times [3Y] / [Z]$



$[2X]^3 \times [3Y] / [Z]$



$[Z] / [X]^2[Y]^3$



$[Z] / [2X] \times [3Y]$

Explanation

$[Z] / [X]^2[Y]^3$

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Correct



Unattempted



Incorrect



5/10

Q : For which of the following reactions $K_p > K_c$



Explanation

If number of moles of product are greater than reactant

$$K_p > K_c \text{ as } K_p = K_c (RT)^{\Delta n}$$

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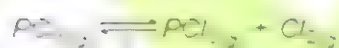


Incorrect



6/10

Q : For which of the following reactions K_c is greater than K_p



Explanation

If the number of moles of products is less than the moles of reactants then

$$K_c > K_p$$

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Correct



Unattempted



Incorrect



7/10

Q : Which is the correct relationship



$$K_P = K_C (P)^{\Delta n}$$



$$K_C = K_P (RT)^{\Delta n}$$



$$K_P = K_C (RT)^{\Delta n}$$



$$K_P = K_C (RT)^{\Delta n}$$

Explanation

$$K_P = K_C (RT)^{\Delta n}$$

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Correct



Unattempted



Incorrect



0/10

Q : When no. of moles of reactants are equal to that of the products,



$K_p < K_c$



$K_p > K_c$



$K_p = K_c$



none of these

Explanation

$n_R = n_P$ then $\Delta n = 0$ So

$K_p = K_c (RT)^{\Delta n}$

$K_p = K_c$

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Correct



Unattempted



Incorrect



9/10

Q : If ratio of concentration of products and that of reactants is greater than K_c then reaction will move



Forward



backward



unchanged



at equilibrium

Explanation

[Product]↑ reaction will backward

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← Practice Test-1(Chemical Equilibrium)



Correct



Unattempted



Incorrect



10/10

Q : If the value of K_c is very large for a reaction then the reaction is



Incomplete



partially complete



almost complete



no effect

Explanation

$K_c < 10^{-10}$ Reaction will be very slow.

$K_c = 10^1$ Reaction will be at equilibrium

$K_c = 10^{50}$ Reaction will complete

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Practice Test-2 (Chemical Equilibrium)

10 Questions

7 min

Topics

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06 : 58



1/10



7 min



Hint

Q : In the following homogeneous equilibrium when pressure is increased at constant temperature. What would be the

direction of reaction for $2\text{O}_3 \rightleftharpoons 3\text{O}_2$ $K_c = 10^{5.5}$



Forward



No effect



Backward



Unpredictable

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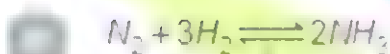
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2/10

7 min

Hint

Q : In which case ,decrease of pressure favours forwards reaction



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3/10

7 min

Hint

Q : Which is true about the following equilibrium



- ☐ A Sulphuric acid is a base
- ☐ B Sulphuric acid is dehydrating agent
- ☐ C Addition of water reduces $[\text{NO}_2^+]$
- ☐ D Both B and C

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4/10



7 min



Hint

Q : The optimum temperature and pressure for the synthesis of ammonia are



400⁰C/200 atm



450⁰C/300 atm



400⁰C/200-300 atm



400-500⁰C/1 atm

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7 min

100%

Q :

The optimum temperature and pressure for the synthesis of SO_3 are

- ☐ 400 $^{\circ}\text{C}$ /200 atm
- ☐ 450 $^{\circ}\text{C}$ /300 atm
- ☒ 400 $^{\circ}\text{C}$ /200-300 atm
- ☐ 400-500 $^{\circ}\text{C}$ /1 atm

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3/10



7 min



lang

Q :

At very high pressure and low temperature, the rate of formation of NH_3 is



High



low



moderate



none of these

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2/10

7 min

100%

Q : Self-ionization of water is If strong base is added to water at given temperature, water will be basic and its K_c will

- ☐ A Increase
- ☐ B Decrease
- ☐ C First increase, then constant
- ☐ D Remain constant

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3/10

7 min

100%

Q : Strong conjugate base is

☐ Hydroxide ion

☐ Ethoxide ion

☐ Acetate ion

☐ Chloride ion

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Q/10



7 min



100%

Q : In the given anions the weakest Bronsted base is



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15/10



7 min



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Q : pK_a of CH_3COOH is 4.74. The pK_b value of CH_3COO^- ions will be



7



14



9.26



zero

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QUIZ RESULT

Practice Test-2 (Chemical Equilibrium)

Q

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11-Apr-2021

A

0/10

J

7 min

0 s

0/10

Result Detail

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Correct

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Incorrect

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Unattempted

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Chemistry

99%

← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



1/10

Q : In the following homogeneous equilibrium when pressure is increased at constant temperature. What would be the direction of reaction for $2\text{O}_3 \rightleftharpoons 3\text{O}_2$ $K_c = 10^{-56}$



Forward



No effect



Backward



Unpredictable

Explanation

By pressure is increases reaction moves towards lesser number of moles.

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



2/10

Q : In which case, decrease of pressure favours forwards reaction



Explanation

When pressure of the system decreases then volume of the system increases and reaction moves towards the

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← Practice Test-2 (Chemical Equilibrium)



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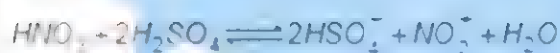


Incorrect



3/10

Q : Which is true about the following equilibrium



A Sulphuric acid is a base



B Sulphuric acid is dehydrating agent



C Addition of water reduces $[\text{NO}_2^+]$



D Both B and C

Explanation

Both Sulphuric acid is dehydrating agent and Addition of water reduces $[\text{NO}_2^+]$

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



4/10

Q : The optimum temperature and pressure for the synthesis of ammonia are



400⁰C/200 atm



450⁰C/300 atm



400⁰C/200-300 atm



400-500⁰C/1 atm

Explanation

400⁰C/200-300 atm, at this condition rate of reaction and yield is at optimum level

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



5/10

Q :

The optimum temperature and pressure for the synthesis of SO_3 are



400°C/200 atm



450°C/300 atm



400°C/200-300 atm



400-500°C/1 atm

Explanation

400-500°C/1 atm, at this condition rate of reaction and yield is at optimum level

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



5/10

Q :

At very high pressure and low temperature, the rate of formation of NH_3 is



High



low



moderate



none of these

Explanation

The yield of ammonia is favoured at low temperature and high pressure, but at low temperature rate of reaction is very slow.

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



7/10

Q : Self-ionization of water is If strong base is added to water at given temperature, water will be basic and its K_c will



Increase



Decrease



First increase, then constant



Remain constant

Explanation

K_c does not change by conc.

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



8/10

Q : Strong conjugate base is



Hydroxide ion



Ethoxide ion



Acetate ion



Chloride ion

Explanation

Weaker the acid stronger the conjugate base

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



9/10

Q : In the given anions the weakest Bronsted base is



ClO^-



ClO_2^-



ClO_3^-



ClO_4^-

Explanation

Stronger the acid weaker the conjugate base HClO_4 is stronger acid

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← Practice Test-2 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



10/10

Q : pK_a of CH_3COOH is 4.74. The pK_b value of CH_3COO^- ions will be



7



14



9.26



zero

Explanation

$$pK_a + pK_b = 14$$

$$pK_b = 14 - pK_a = 14 - 4.74 = 9.26$$

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QUIZZES

Practice Test-3 (Chemical Equilibrium)

10 Questions

7 min

Topics

Start Quiz

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1/12

7 min

100%

Q : pH of a solution is directly proportional to ____ and inversely proportional to ____.

- ☐ [OH⁻¹], [H⁺]
- ☐ [H⁺], [OH⁻]
- ☐ both a & b
- ☐ None of these

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2/13

7 min

100%

Q : pH of boiling water is

- ☒ Equal to 7
- ☐ Less than 7
- ☐ More than 7.5
- ☐ Slightly greater than 7

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7 min

100%

Q : Addition of NH_4Cl in NH_4OH shifts the equilibrium position.

- ☐ A In backward direction
- ☐ B In forward direction
- ☐ C May be forward or backward
- ☒ D Does not affect the equilibrium position

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7 min

Hint

Q : A beaker contains a saturated solution of potassium Perchlorate. When potassium chloride (KCl) is added to this solution, some of the potassium Perchlorate is precipitated. It means that

- ☐ A KClO_4 is stronger electrolyte than KCl
- ☐ B Solubility of KClO_4 is greater than that of KCl
- ☐ C Both KClO_4 and KCl are soluble in water to some extent
- ☐ D KCl is a stronger electrolyte as compared with KClO_4

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5/10

7 min

100%

Q : Silver nitrate is added to aqueous barium chloride according to the stoichiometric ratio. The precipitate is removed by filtration. What are the main ions in the filtrate

A Ag^{1+} and NO_3^{1-} only

B Ba^{2+} and NO_3^{1-} only

C Ag^{1+} , Ba^{2+} , and NO_3^{1-}

D Ba^{2+} , NO_3^{1-} and Cl^{1-}

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5/10



7 min



Hint

Q : Sodium benzoate and benzoic acid are mixed in equimolar ratio to form buffer if pK_a is 2 what will be the pH?



0



1



2



Any one

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7/10

7 min

100%

Q : A basic buffer solution can be prepared by mixing

- ☒ Weak acid and its salt with strong base
- ☐ Strong acid and its salt with weak base
- ☐ Weak base and its salt with strong base
- ☐ Strong base and its salt with weak acid

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3/10

7 min

100%

Q : Buffer is a solution

- ☐ Whose pH is constant
- ☐ Which resists change in its pH
- ☐ Which can absorb large quantity of acid or base without changing its pH
- ☐ Whose pH may or may not change during a chemical reaction

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2/10



7 min



1st

Q :

Solubility of which salt in H_2O increases with temperature



LiCl



Li_2CO_3



KI



Na_2CO_3

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12/10



7 min



lang

Q :

For solubility product of solutions, solubility of salt may be equal to or less than



0.01M



1.0M



1.0M



0.1M

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QUIZ RESULT

Practice Test-3 (Chemical Equilibrium)

Q

0

7 min

11-Apr-2021

0 s

0/0

J

7 min

0 s

0/0

Result Detail

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Correct

0



Incorrect

0



Unattempted

0

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Chemistry

99%

← Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



1/10

Q : pH of a solution is directly proportional to ____ and inversely proportional to ____.



[OH⁻¹], [H⁺]



[H⁺], [OH⁻]



both a & b



None of these

Explanation

Acid strength is directly proportional to [H⁺] and [OH⁻¹]

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← Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



2/10

Q : pH of boiling water is



Equal to 7



Less than 7



More than 7.5



Slightly greater than 7

Explanation

By increasing the temperature dissociation increases, $[H^+]$ increases and pH decreases

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← Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



3/10

Q : Addition of NH_4Cl in NH_4OH shifts the equilibrium position.



In backward direction



In forward direction



May be forward or backward



Does not affect the equilibrium position

Explanation

According to Le-Chatelier's Principle position will be in backward direction.

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← Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



4/10

Q : A beaker contains a saturated solution of potassium Perchlorate. When potassium chloride (KCl) is added to this solution, some of the potassium Perchlorate is precipitated. It means that



KClO₄ is stronger electrolyte than KCl



Solubility of KClO₄ is greater than that of KCl



Both KClO₄ and KCl are soluble in water to some extent



KCl is a stronger electrolyte as compared with KClO₄

Explanation

Strong electrolyte (KCl) will suppress the ionization of weak electrolyte (KClO₄)

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← Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



5/10

Q : Silver nitrate is added to aqueous barium chloride according to the stoichiometric ratio. The precipitate is removed by filtration. What are the main ions in the filtrate



Ag^{1+} and NO_3^{1-} only



Ba^{2+} and NO_3^{1-} only



Ag^{1+} , Ba^{2+} , and NO_3^{1-}



Ba^{2+} , NO_3^{1-} and Cl^{1-}

Explanation

Ba^{2+} and NO_3^{1-} only while Ag^{+1} and Cl^{-1} will react completely

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Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



6/10

Q : Sodium benzoate and benzoic acid are mixed in equimolar ratio to form buffer if pK_a is 2 what will be the pH?

A

0

B

1

C

2

D

Any one

Explanation

Henderson's = Equation

$$pH = pK_a + \log \frac{[\text{Salt}]}{[\text{Acid}]}$$
$$= pK_a + \log \frac{[C_6H_5COO^- N^+ a]}{[C_6H_5COOH]}$$

$$= pK_a + \log \frac{(\text{salt and acid})}{\text{are equimolar}}$$

$$= pK_a + \log 1$$
$$pH = pK_a + 0$$

$$pH = pK_a$$

$$pH = 2$$

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Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



7/10

Q : A basic buffer solution can be prepared by mixing

A

Weak acid and its salt with strong base

B

Strong acid and its salt with weak base

C

Weak base and its salt with strong base

D

Strong base and its salt with weak acid

Explanation

A basic buffer solution can be prepared by mixing Weak base and its salt with strong base



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Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



8/10

Q : Buffer is a solution

A

Whose pH is constant

B

Which resists change in its pH

C

Which can absorb large quantity of acid or base without changing its pH

D

Whose pH may or may not change during a chemical reaction

Explanation

Buffer is a solution which resists change in its pH

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Practice Test-3 (Chemical Equilibrium)



Correct



Unattempted



Incorrect



9/10

Q :

Solubility of which salt in H_2O increases with temperature

A

LiCl

B

Li_2CO_3

C

KI

D

Na_2CO_3

Explanation

KI give endothermic solution while other 3 salts gives exothermic solution

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